

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (Currently Amended) A system for focusing electromagnetic energy on a target having a nature, functionality, purpose, operational state and threat, the system comprising:
first means for providing a pilot beam of electromagnetic energy;
second means for receiving a wavefront a spatially and temporally dependent electromagnetic field having phase, frequency, amplitude, and polarization characteristics, wherein the electromagnetic field corresponds due to a reflection of said pilot beam from said the target;
third means for analyzing said the received wavefront electromagnetic field from said the target to determine, from the received wavefrontelectromagnetic field, information that is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target and in response to the information for providing data in response thereto which is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target; and
fourth means for receiving the data from said third means and in response to said data for providing a modulated an output beam in response to said which is predistorted to compensate for distortions and other phase and/or amplitude information in said received wavefront whereby said output beam is focused at said target data and wherein said fourth means is adapted to modulate the output beam by changing at least one of a phase characteristic, a frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency wavelength characteristic and wherein the modulated output beam is predistorted to compensate for distortions, phase noise and amplitude noise in said received electromagnetic field.
2. (Original) The invention of Claim 1 wherein said first means includes a beacon laser.
3. (Original) The invention of Claim 2 wherein said beacon laser is mounted off-axis with

respect to said output beam.

4. (Original) The invention of Claim 1 wherein said second means includes a telescope.

5. (Original) The invention of Claim 4 wherein said telescope is gimbaled.

6. (Original) The invention of Claim 5 wherein said second means further includes a detector in optical alignment with said telescope.

7. (Original) The invention of Claim 6 wherein said second means further includes a track processor in communication with said detector.

8. (Original) The invention of Claim 1 wherein said third means includes a wavefront error sensor.

9. (Currently Amended) The invention of Claim 8 wherein said fourth means includes means for providing an output beam which is a phase conjugate of said received electromagnetic fieldwavefront.

10. (Original) The invention of Claim 9 wherein said fourth means includes a deformable mirror.

11. (Original) The invention of Claim 10 wherein said fourth means includes mirror control means responsive to said wavefront sensor for controlling said deformable mirror.

12. (Currently Amended) The invention of Claim 11 wherein said first means corresponds to a beacon laser and said fourth means includes a second laser, different from the beacon laser, for illuminating said deformable mirror to provide said output beam.

13. (Currently Amended) The invention of Claim 12 1 wherein the modulated output beam is

adapted to affect the target in a predetermined manner said fourth means further includes means for modulating said output beam.

14. (Currently Amended) The invention of Claim 13 1 wherein said fourth means for modulating includes means for detecting a modulation in a beam received from the target.

15. (Currently Amended) The invention of Claim 14 wherein said fourth means for modulating further includes a closed-loop system controller responsive to said means for detecting a modulation.

16. (Currently Amended) The invention of Claim 15 wherein said fourth means for modulating includes an electro-optic shutter disposed in the path of the output of said laser and responsive to said closed-loop system controller.

17. (Currently Amended) The invention of Claim 16 wherein said fourth means for modulating includes means for controlling said deformable mirror to effect a modulation of said output beam.

18. (Original) The invention of Claim 1 wherein said third means and said fourth means are implemented with an optical phase conjugate mirror.

19. (Currently Amended) A system for focusing electromagnetic energy on a target comprising:
first means for analyzing information included in a received electromagnetic field
wavefront to determine, from the received electromagnetic field, information that is
indicative of at least one of: a nature of the target, a functionality of the target, a purpose of
the target, an operational state of the target and a threat of the target and for providing data
in response thereto, said electromagnetic field wavefront being provided by star light and
wavefront electromagnetic field distortions being due to the atmosphere; and

second means for receiving the data from said first means and for providing an a
modulated output beam in response to said data wherein said second means is adapted to

modulate the output beam by changing at least one of a phase characteristic, a frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency wavelength characteristic and wherein the modulated output beam is predistorted to compensate for distortions, phase noise and amplitude noise in said received electromagnetic field which is predistorted to compensate for said distortions and other phase and/or amplitude information in said wavefront whereby said output beam is focused at a target.

20. (Original) The invention of Claim 19 wherein said first means includes a wavefront error sensor.

21. (Currently Amended) The invention of Claim 20 wherein said wavefront error sensor is adapted to detect distortions in star light and other phase and/or amplitude information in said electromagnetic field wavefront induced by the atmosphere.

22. (Original) The invention of Claim 21 wherein said second means includes a deformable mirror.

23. (Original) The invention of Claim 22 wherein said wavefront error sensor includes means for controlling said deformable mirror to predistort said output beam whereby said output beam is focused by said atmosphere at a target.

24. (Original) The invention of Claim 23 wherein said second means includes a laser for illuminating said deformable mirror to provide said output beam.

25. (Currently Amended) The invention of Claim 12 19 wherein the modulated output beam is adapted to affect the target in a predetermined manner said second means further includes means for modulating said output beam.

26. (Currently Amended) The invention of Claim 25 19 wherein said second means for

~~modulating~~ includes means for detecting a modulation in a beam received from the target.

27. (Currently Amended) The invention of Claim 26 wherein said second means for ~~modulating~~ further includes a closed-loop system controller responsive to said means for detecting a modulation.

28. (Currently Amended) The invention of Claim 27 wherein said second means for ~~modulating~~ includes an electro-optic shutter disposed in the path of the output of said laser and responsive to said closed-loop system controller.

29. (Currently Amended) The invention of Claim 19 wherein said first means and said second means are implemented with an optical phase conjugate mirror.

30. (Currently Amended) A method for focusing electromagnetic energy on a target having at least one of a nature, functionality, purpose, operational state and threat, the method including the steps of:

emitting providing a pilot beam of electromagnetic energy toward the target;
receiving an electromagnetic field a wavefront due to a reflection of said the pilot beam from said the target;

analyzing distortions in said the received electromagnetic field wavefront from said target to determine, from the received electromagnetic field, information that is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target and providing data in response thereto wherein the data is indicative of at least one of: the nature of the target, the functionality of the target, the purpose of the target, the operational state of the target and the threat of the target; and

modulating providing an output beam in response to said the data, wherein said modulating includes modulating the output beam by changing at least one of a phase characteristic, a frequency characteristic, an amplitude characteristic, a polarization characteristic and a carrier frequency wavelength characteristic and wherein the modulated output beam is predistorted to compensate for distortions, phase noise and amplitude noise in the received electromagnetic

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~~field which is predistorted to compensate for said distortions and other phase and/or amplitude information in said wavefront whereby said output beam is focused at said target.~~